

DIVISION 8 - DOORS AND WINDOWS

SECTION 08100 METAL DOORS AND FRAMES

A. GENERAL

RELATED WORK SPECIFIED ELSEWHERE

Caulking and sealants	Section 07900
Hardware, including silencers	Section 08700
Grouting of frames in metal stud walls	Section 09250
Bracing of frame heads in metal stud walls	Section 09250
Painting	Section 09900

SCOPE

Provide all labor, materials, tools, and equipment necessary for the furnishing and installation, complete, of all hollow metal doors and frames as shown on the Drawings or specified, in accordance with the provisions of the Contract Documents and completely coordinated with that of all other trades.

Although such work is not specifically shown or specified, furnish and install all supplementary or miscellaneous items, appurtenances, and devices incidental to or necessary for a sound, secure, and complete installation.

QUALITY ASSURANCE

Hollow metal doors and frames shall be supplied by a single source supplier of all door hardware, hollow metal doors and frames. Suppliers shall be responsible for all coordination and preparation of products as they relate to each other.

Specified gauges of metals in doors, frames and reinforcing, and specified sizes, locations and extent of reinforcing will prevail in any case of conflict with industry standards.

Doors and frames shall comply with the Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames" (SDI-100) and as herein specified. Doors and frames shall also comply with American Society for Testing and Materials (ASTM), Door and Hardware Institute standards, and National Fire Protection Association (NFPA) as they may apply to this project.

HARDWARE TEMPLATES

Hardware templates shall be furnished to the fabricator by the hardware manufacturer. The fabricator shall drill and tap all holes, and make all cutouts and reinforcements in frames and doors to receive hardware in a neat and proper manner.

SUBMITTALS

Submit Shop Drawings in accordance with Section 1B, Shop Drawings/Submittals. Include details of each frame type, elevations of door design types, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.

Provide schedule of doors and frames using same reference numbers for details and openings as those on the Drawings.

DELIVERY, STORAGE AND HANDLING

Doors shall be shipped individually packed. Frames shall be shipped with angle spreaders at door opening bottoms. Doors and frames shall be stored on the building site, in an upright position, under cover, on wood sills or floors, in a manner that will prevent rust or damage. Ventilate canvas or plastic to prevent moisture traps.

1 Inspect hollow metal work upon delivery for damage. Minor damage may be repaired provided items are equal in
2 all respects to new work and acceptable to the Government Construction Representative. Rejected work shall be
3 replaced with new items.

4 B. PRODUCTS

5 MATERIALS

6 Steel sheets shall be cold-rolled, commercial quality carbon steel complying with ASTM A 366 and ASTM A 568.

7 Fabricate supports and anchors of not less than 18-gauge galvanized sheet steel unless otherwise noted.

8 Inserts, bolts and fasteners shall be the manufacturer's standard units, complying with ASTM A 153, Class C or D
9 as applicable.

10 Shop-applied primer for all doors, frames, and related accessories shall be rust-inhibitive enamel or paint, either
11 air-dried or baked, suitable as a base for specified finish paints listed in Section 09900.

12 Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.

13 HOLLOW METAL DOORS - FULL FLUSH TYPE

14 Face sheets shall be 16-gauge cold-rolled stretcher-leveled steel internally welded to steel stiffeners of sufficient
15 strength and spacing to support the face sheets against impact and to assure flat face sheet surfaces, or shall be
16 bonded to a rigid polystyrene or polyurethane core. If steel stiffeners are used, doors shall be filled with mineral
17 rock wool or fiberglass.

18 Vertical edges shall be minimum 16-gauge continuous channels (12-gauge continuous "C" channels with minimum
19 3/16-inch thread depth or 3/16-inch x 12-inch continuous steel plate at hinge edges from top to bottom of door)
20 with each face sheet wrapped around the channels meeting at the center of the edge, with the resulting seam
21 closed, welded, ground smooth, filled and finished, or continuously welded and ground smooth. If edges are not
22 continuously welded, provide hinge reinforcing at all hinges equal to Steelcraft's high frequency hinge
23 reinforcement. Provide 1/8-inch bevel on lock edge of door. Provide square edges on hinge edges of door. Non-
24 handed doors will not be permitted.

25 Top and bottom edges shall be 14 or 16-gauge continuous steel channels. Back of channel shall align with the top
26 of face sheets and shall be smooth and flush. Flush plastic filler caps may be used in lieu of metal channel top
27 closure for interior doors only. Inverted channels (legs down) shall be used as door bottoms.

28 HOLLOW METAL FRAMES

29 Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings of types and styles as
30 shown on the Drawings and Schedules. Conceal fastenings, unless otherwise indicated.

31 Fabricate frames and associated members from 14-gauge, cold-rolled steel.

32 Frame corners for the three-sided door frames shall be die-mitered with frame face continuously welded and
33 ground smooth. Continuously back weld soffit and rabbets. Frame corners for transom, sidelight, and borrowed
34 light frames shall be saw-mitered or butt joint. Intermediate rail connections shall be coped and let into adjacent
35 members and all corners and connections shall be face welded and ground smooth.

36 Prepare stops to receive three door silencers on strike jambs of frames on single-leaf doors and two silencers on
37 heads of frames on double-leaf doors. Silencers shall be type GJ64 manufactured by Glynn Johnson. Silencers
38 shall not be omitted at doors scheduled to receive sound strips or weatherstripping. Silencers shall be furnished
39 under Section 08700.

40 Stops shall be 5/8-inch high unless noted otherwise on the Drawings or required to achieve specified fire ratings.
41 Jamb anchors shall be adjustable, 16-gauge corrugated steel, permanently fastened to the frame for setting into
42 masonry partitions, or standard steel stud anchors for metal stud/gypsum board partitions. Each jamb shall be

anchored to the floor with an adjustable base anchor. Other types of anchors shall be provided when required for other conditions. Provide a minimum of three anchors per jamb for frames up to 90 inches high and four anchors per jamb for frames over 90 inches high.

FABRICATION

Fabricate metal doors and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant.

Welds shall be ground invisible and depressions shall be filled smooth.

FINISH HARDWARE PREPARATION

Prepare doors and frames to receive mortised and concealed finish hardware in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Comply with the applicable requirements of ANSI A115 Series Specifications for door and frame preparation for hardware.

Doors and frames shall be mortised, reinforced, drilled and tapped for scheduled mortised hardware.

Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied finish hardware may be done at project site.

FRAME HINGE REINFORCEMENT

-All doors provide high-frequency hinge reinforcement at top hinge only.

DOOR REINFORCEMENT FOR ALL DOORS

Closer/Holder/Overhead Stop Minimum 12-gauge tubular 5-inch x 18-inch length, or as required.

ADDITIONAL FRAME REQUIREMENTS

1. Install 1-inch x 2-inch x length required foam insulation where grouted frames must be penetrated by machine or sheet metal screws for attachment of closers, rim panic strikes, or jamb up weatherstrip. Attach securely with tape or adhesive as required.
2. Plaster guard covers shall be welded in place over all drilled reinforcements of frames.

SHOP PAINTING

Clean steel surfaces of mill scale, rust, oil, grease, dirt, and other foreign materials before application of paint.

Apply shop coat of prime paint of even consistency to all doors and frames to provide a uniform and smooth finished surface ready to receive finish paint, including back surfaces of all frames.

C. EXECUTION

INSPECTION

Examine substrate and conditions under which metal doors and frames are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected.

INSTALLATION

Comply with provisions of SDI-105 "Recommended Erection Instructions for Steel Frames," unless otherwise indicated.

Place frames prior to construction of enclosing walls and ceilings. After wall construction is completed, remove temporary braces, and spreaders, leaving surfaces smooth and undamaged.

1 At new sills and thresholds installed on existing floor materials, level existing materials with grout as required to
2 make proper substrate for installation of new sill or threshold.

3
4 Install frames accurately in position, plumbed and aligned to Door and Hardware Institute standards, and braced
5 securely until permanent anchors are set. Anchor frames securely to floor and at jambs. Furnish necessary clips,
6 fastenings and anchorages, and conceal unless otherwise noted. Weld all field joints, grind smooth, and fill with
7 body putty to completely conceal seams and to form a smooth, unbroken finish surface.

8
9 Spot grout at all jambs of frames set into metal stud construction; this work is included under Section 09250.

10
11 Where frames are anchored with bolts, bolts shall be countersunk, and surfaces shall be made smooth with putty.
12 Install fire-rated frames in accordance with NFPA Standard No. 80.

13 DOOR INSTALLATION

14
15
16 Fit hollow metal doors accurately in frames, within clearances specified in SDI-100 with doors plumb and true
17 without hinge binding.

18 ADJUST AND CLEAN

19
20
21 Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of
22 compatible air-drying primer, paying particular attention to bottom of frames at the floor line.

23
24 Check and readjust operating finish hardware items, leaving metal doors and frames undamaged and in complete
25 and proper operating condition.